Properties of Microwave-Assisted Spray Dried Pineapple Juice Powder

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Abstract

There is considerable interest and research into the intensification of processing methods that offer better product quality and energy efficiency at reduced costs and better yield. Microwave-assisted spray drying is one such potential process. Microwaves were integrated into the spray drying process of juice feeds in a laboratory scale spray drier to produce dried powder. The juice feeds comprise pineapple-maltodextrin mixtures that were spray dried in a concurrent air flow using microwave frequencies of 915 MHz and 2450 MHz and an inlet air temperature range of 105 ^{o}C – 130 ^{o}C and. The powder yield using the different microwave frequencies were analyzed for moisture content, bulk density and solubility. The differences in the dried powder yield was negligible while observed differences in the measured powder properties for the microwave frequencies used varied from 2% to 5% for similar inlet drying air conditions.

Keywords: Pineapple juice, Microwaves, Spray drying, Physicochemical properties.